

2014 Synar Analysis – DRAFT

2014 Statewide

Violation Rate 95% Confidence Interval

13 (11, 15)

2014 Stratum (Region)

Table1: 2014 Stratum Results

Region	Abbr.	Outlets Selected	Outlets Completed	Total Violations	Weighted Rate	Standard Error	Lower Limit	Upper Limit
Statewide	State	2113	1166	132	13	1.2	11	15
North Central	NC	123	79	16	21	5.5	10	31
North East	NE	301	156	13	8	2.8	3	14
North West	NW	131	78	4	5	1.6	2	8
South Central	SC	249	130	10	8	2.6	3	13
South East	SE	388	208	16	8	2.1	4	12
South West	SW	248	145	6	4	1.9	0	8
Allegheny	AL	130	61	9	15	4.6	6	24
Delaware	DE	147	79	15	19	4.4	10	28
Erie	ER	112	60	5	8	3.6	1	15
Philadelphia	PH	284	170	38	22	3.2	16	29

Significant differences:

- NC outlets were 2.8 times more likely to sell than NE
- DE outlets were 2.6 times more likely to sell than NE
- PH outlets were 3.2 times more likely to sell than NE
- NC outlets were 4.8 times more likely to sell than NW
- AL outlets were 3.2 times more likely to sell than NW
- DE outlets were 4.3 times more likely to sell than NW
- PH outlets were 5.3 times more likely to sell than NW
- NC outlets were 3.1 times more likely to sell than SC
- DE outlets were 2.8 times more likely to sell than SC
- PH outlets were 3.5 times more likely to sell than SC
- NC outlets were 3.1 times more likely to sell than SE
- DE outlets were 2.8 times more likely to sell than SE
- PH outlets were 3.5 times more likely to sell than SE
- NC outlets were 5.9 times more likely to sell than SW
- AL outlets were 4.0 times more likely to sell than SW
- DE outlets were 5.4 times more likely to sell than SW
- PH outlets were 6.6 times more likely to sell than SW
- PH outlets were 3.2 times more likely to sell than ER

Table2: 2014 Weighted Rate Applied to Estimated Outlet Totals

Stratum	Estimated Eligible outlets	Estimated Outlets Violating	95% CL for Mean	
			Lower	Upper
Statewide	16,760	2,179	1,844	2,514
North Central	1,012	213	101	314
North East	2,067	165	62	289
North West	871	44	17	70
South Central	1,577	126	47	205
South East	2,747	220	110	330
South West	1,854	74	0	148
Allegheny	1,259	189	76	302
Delaware	602	114	60	169
Erie	277	22	3	42
Philadelphia	4,494	989	719	1,303

2014 Outlet Type

Table3: 2014 Outlet Type Results

Outlet Type	Total Visited	Violations	Weighted Rate	Lower Limit	Upper Limit
Bar/Tavern	19	3	n/a	n/a	n/a
Beer Distributor	62	4	5	0	9
Convenience-gas	350	36	11	8	15
Convenience-Grocery-nogas	259	49	21	15	26
Dollar Store	82	4	4	0	9
Pharmacy/Drug Store	102	6	7	1	12
News Outlet	25	3	n/a	n/a	n/a
Restaurant/deli	70	13	22	11	34
Supermarket	121	4	3	0	7
Tobacco	50	7	14	4	25
EMP-LOT-PVR-UNL	0	0	n/a	n/a	n/a
Other	26	3	n/a	n/a	n/a

Note: The rate was marked n/a if "Total Visited" was below 40.

Significant differences:

- Convenience-Grocery-nogas outlets were 5.4 times more likely to sell than Beer Distributor
- Restaurant/deli outlets were 6.1 times more likely to sell than Beer Distributor
- Convenience-Grocery-nogas outlets were 2.1 times more likely to sell than Convenience-gas
- Restaurant/deli outlets were 2.3 times more likely to sell than Convenience-gas
- Convenience-Grocery-nogas outlets were 5.6 times more likely to sell than Dollar Store
- Restaurant/deli outlets were 6.2 times more likely to sell than Dollar Store
- Tobacco outlets were 3.6 times more likely to sell than Dollar Store
- Convenience-Grocery-nogas outlets were 3.6 times more likely to sell than Pharmacy/Drug Store
- Restaurant/deli outlets were 4.0 times more likely to sell than Pharmacy/Drug Store
- Convenience-gas outlets were 3.7 times more likely to sell than Supermarket
- Convenience-Grocery-nogas outlets were 7.7 times more likely to sell than Supermarket
- Restaurant/deli outlets were 8.6 times more likely to sell than Supermarket
- Tobacco outlets were 4.9 times more likely to sell than Supermarket

2014 Buyer Gender

Table4: 2014 Buyer Gender Results

Gender	Total Visited	Violations	Weighted Rate	Lower Limit	Upper Limit
M	689	62	10	7	13
F	477	70	17	13	21

The following significant differences were found:

- Females were 1.8 times more likely to be sold cigarettes than males.

2014 Buyer Age

Table5: 2014 Buyer Age Results

AGE	Total Visited	Violations	Weighted Rate	Lower Limit	Upper Limit
15	233	11	5	2	8
16	586	73	15	11	18
17	347	48	17	5	28

Significant differences:

- 16 year olds were 3.5 times more likely to be sold cigarettes than 15 year olds.
- 17 year olds were 3.4 times more likely to be sold cigarettes than 15 year olds.

2014 Buyer Race/Ethnicity

Table6: 2014 Buyer Race Results

Race	Total Visited	Violations	Weighted Rate	Lower Limit	Upper Limit
White	830	74	9	7	11
Black	269	57	22	17	28
Asian	0	0	0	0	0
Other	67	1	2	0	5

Significant differences:

- Black youth were 2.8 times more likely to be sold cigarettes than white youth.
- White youth were 6.4 times more likely to be sold cigarettes than youth who could not be placed in the white, black or Asian category.
- Black youth were 17.8 times more likely to be sold cigarettes than youth who could not be placed in the white, black or Asian category.

Table7: 2014 Buyer Ethnicity Results

Gender	Total		Weighted Rate	Lower Limit	Upper Limit
	Visited	Violations			
Hispanic	62	8	12	5	19
NonHispanic	1104	124	13	11	15

There were no significant differences between Hispanic and Non-Hispanic.

2014 Gender of Clerk

Table8: 2014 Gender of Clerk Results

Gender	Total		Weighted Rate	Lower Limit	Upper Limit
	Visited	Violations			
M	509	80	17	2	14
F	651	51	9	1	6

Significant differences:

- Male Clerks were 2.1 times more likely to sell cigarettes to minors.

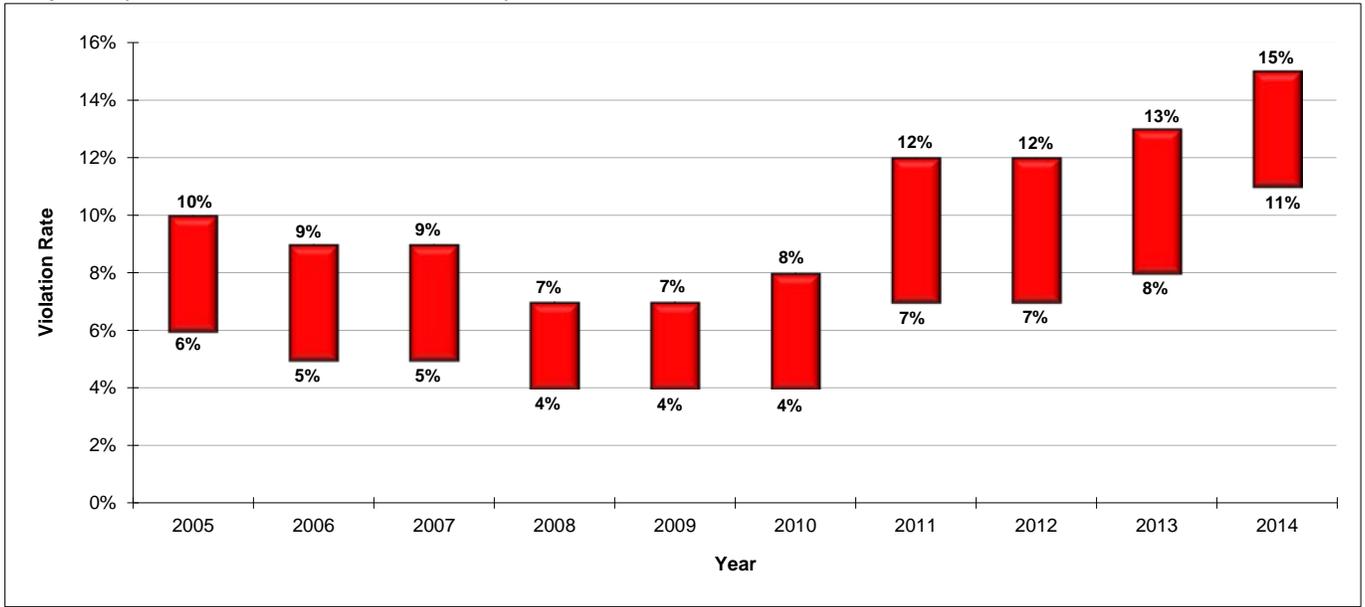
Over the Years

Table9: Comparing 2014 to past years

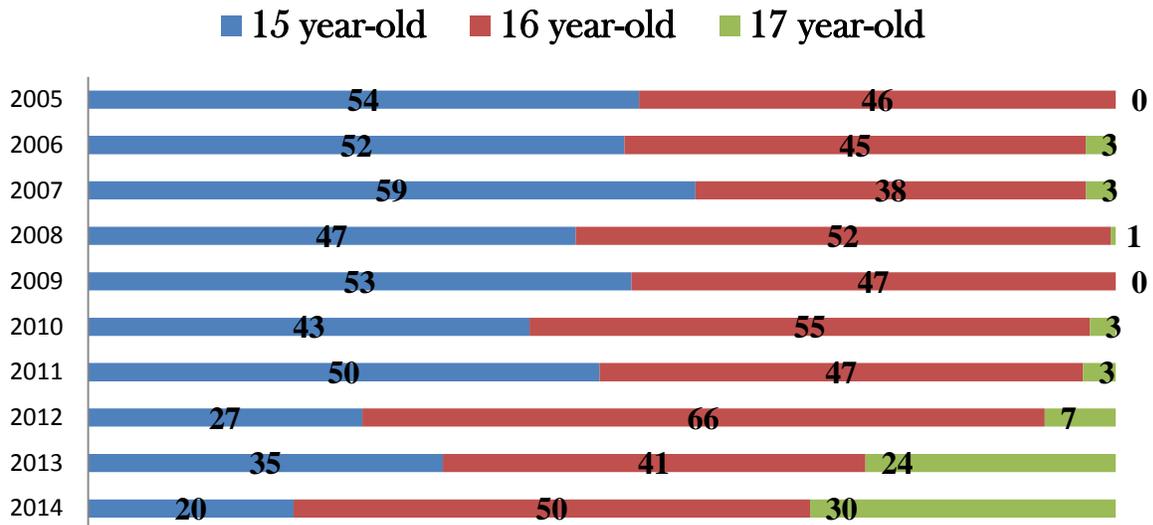
Year	Rate	Year	Rate	Significantly Different	Magnitude of Difference
2014	13	2013	11	NO	n/a
2014	13	2012	9	Yes	1.4
2014	13	2011	10	Yes	1.4
2014	13	2010	6	Yes	2.3
2014	13	2009	5	Yes	2.6
2014	13	2008	5	Yes	2.8
2014	13	2007	7	Yes	2.0
2014	13	2006	7	Yes	2.0
2014	13	2005	8	Yes	1.7

Note: Magnitude is the Odds Ratio

Graph1: Synar Violation Rates for Past 10 years (2005 – 2014)



Graph2: Age of youth buyer 2005-2014



Notes

- We surveyed 74 more outlets in 2014 than 2013.
- Doubled sample size of Delaware county, 2014 vs 2013.
- Increased sample size by 25% in Philadelphia, 2014 vs 2013.
- Outcome differences can be explained by different distributions, within a region, between years, for youth's age and gender
- male clerks selling significantly higher rate than female clerk.
- No significant statewide differences in sale rate over the last 3 years after adjusting for distributions in youth's age and gender.
- 17-year-old buyers has greatly increased over the past 2 surveys. I recommend not using 17-yr olds because it is hard to compare to past surveys when there is a big difference in buyer ages.

This analysis of the 2014 Synar survey contains weighted rates that take into account unequal probabilities of selection and non-completions. Chi-Square tests were used to determine significant differences and the Odds Ratio was calculated to measure the strength of association. Confidence limits were calculated using the t-distribution with the degrees of freedom (df) determined by subtracting the total strata from the total clusters.